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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,092	08/21/2001	Bernardus Hendrikus Wilhelmus Hendriks	PHN 17,870	9202

24737 7590 01/02/2004

PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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BRIARCLIFF MANOR, NY 10510

EXAMINER

BATTAGLIA, MICHAEL V

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/914,092

Applicant(s)

HENDRIKS ET AL.

Examiner

Michael V Battaglia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Drawings*

2. The drawings are objected to because the compensator of Fig. 2 is incorrectly labeled as "26". The examiner suggests re-labeling the compensator as -16-. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. **Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading.** If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or

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REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(e) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-10, and 12-14 rejected under 35 U.S.C. 102(e) as being anticipated by Maruyama (US 6,191,889).

In regard to claim 1, Maruyama discloses an optical head for scanning an optical record carrier having an information layer (Col. 1, lines 5-10), the head comprising a radiation source for generating a radiation beam (Col. 2, lines 7-10), an optical system for converging the radiation beam to a focus on the information layer (Figs. 1A-1B, element 10

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and Col. 4, lines 28-30), the optical system imparting a temperature-dependent first wavefront deviation to the radiation beam (Col. 1, lines 16-24), and a compensator arranged in the radiation beam for compensating the first wavefront deviation (Figs. 1A-1C, element 11), characterised in that the compensator comprises a phase structure of a material having temperature-dependent properties, the phase structure having the form of annular areas forming a non-periodic pattern of optical paths of different, temperature-dependent lengths (Fig. 1C and Col. 1, lines 66-67), the optical paths forming a second wavefront deviation compensating the temperature-dependent first wavefront deviation (Col. 1, lines 10-17 and Col. 4, lines 51-59).

In regard to claim 2, Maruyama discloses that the optical system comprises an objective system imparting spherical aberration as the first wavefront deviation to the radiation beam (Col. 4, lines 51-53).

In regard to claim 4, Maruyama discloses that the differences between the optical paths are multiples of the wavelength of the radiation beam for at least one temperature (Col. 4, lines 63-64).

In regard to claim 5, Maruyama discloses that at least one of the multiples is equal to two or larger (Col. 4, lines 63-64).

In regard to claim 6, Maruyama discloses that the temperature-dependence of the first wavefront deviation is due to the temperature dependence of the wavelength of the radiation beam generated by the radiation source (Col. 4, lines 41-46).

In regard to claim 7, Maruyama discloses a device for scanning an optical record carrier having an information layer, the device comprising an optical head according to Claim 1 and an information processing unit for error correction (Col. 5, lines 57-64).

In regard to claim 8, Maruyama discloses an optical system comprising an optical element (Figs. 1A-1B, element 10) and a compensator (Figs. 1A-1C, element 11), the optical element being arranged in the path of a radiation beam and imparting a temperature-dependent first wavefront deviation to the radiation beam (Col. 1, lines 16-24), the compensator being arranged in the path of the radiation beam for compensating the first wavefront deviation, characterized in that the compensator comprises a phase structure of a material having temperature-dependent properties, the phase structure having the form of annular areas forming a non-periodic pattern of optical paths of different, temperature-dependent lengths (Fig. 1C and Col. 1, lines 66-67), the optical paths forming a second wavefront deviation compensating the temperature-dependent first wavefront deviation (Col. 1, lines 10-17 and Col. 4, lines 51-59).

In regard to claim 9, Maruyama discloses that the differences between the optical paths are multiples of the wavelength of the radiation beam for at least one temperature (Col. 4, lines 63-64).

In regard to claim 10, Maruyama discloses that the first wavefront deviation is spherical aberration (Col. 4, lines 51-53).

In regard to claim 12, Maruyama discloses that the optical element is a lens (Col. 1, line 9).

In regard to claim 13, Maruyama discloses that the optical element and the compensator are integrated in a single element (Figs. 1A-1B).

In regard to claim 14, Maruyama discloses that the optical system includes a diffractive structure (Col. 1, line 10).

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4. Claims 1-2, 4-5, and 8-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakai et al (hereafter Nakai) (US 6,590,708).

In regard to claim 1, Nakai discloses an optical head for scanning an optical record carrier having an information layer (Fig. 4, element 4 and Col. 1, lines 15-16), the head comprising a radiation source for generating a radiation beam (Col. 3, line 22), an optical system for converging the radiation beam to a focus on the information layer (Fig. 4 and Col. 2, lines 51-52), the optical system imparting a temperature-dependent first wavefront deviation to the radiation beam (Col. 1, lines 18-24 and Col. 3, lines 22-26), and a compensator arranged in the radiation beam for compensating the first wavefront deviation, characterised in that the compensator comprises a phase structure of a material having temperature-dependent properties, the phase structure having the form of annular areas forming a non-periodic pattern of optical paths of different, temperature-dependent lengths, the optical paths forming a second wavefront deviation compensating the temperature-dependent first wavefront deviation (Fig. 4; Col. 1, line 25; and Col. 2, lines 22-29).

In regard to claim 2, Nakai discloses that the optical system comprises an objective system imparting spherical aberration as the first wavefront deviation to the radiation beam (Col. 2, lines 27-28).

In regard to claim 4, Nakai discloses that the differences between the optical paths are multiples of the wavelength of the radiation beam for at least one temperature (Col. 3, lines 40-44).

In regard to claim 5, Nakai discloses that at least one of the multiples is equal to two or larger (Col. 3, lines 40-44).

In regard to claim 8, Nakai discloses an optical system comprising an optical element (Fig. 4, element 5 (refracting portion)) and a compensator (Fig. 4, element 2 (diffracting portion)), the optical element being arranged in the path of a radiation beam and imparting a temperature-dependent first wavefront deviation to the radiation beam (Col. 1, lines 18-24 and Col. 3, lines 22-26), the compensator being arranged in the path of the radiation beam for compensating the first wavefront deviation, characterized in that the compensator comprises a phase structure of a material having temperature-dependent properties, the phase structure having the form of annular areas forming a non-periodic pattern of optical paths of different, temperature-dependent lengths, the optical paths forming a second wavefront deviation compensating the temperature-dependent first wavefront deviation (Fig. 4; Col. 1, line 25; and Col. 2, lines 22-29).

In regard to claim 9, Nakai discloses that the differences between the optical paths are multiples of the wavelength of the radiation beam for at least one temperature (Col. 3, lines 40-44).

In regard to claim 10, Nakai discloses that the first wavefront deviation is spherical aberration (Col. 2, lines 27-28).

In regard to claim 11, Nakai discloses that the first wavefront deviation is defocus (Col. 2, line 27).

In regard to claim 12, Nakai discloses that the optical element is a lens (Col. 3, lines 15-26).

In regard to claim 13, Nakai discloses that the optical element and the compensator are integrated in a single element (Fig. 4).

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In regard to claim 14, Nakai discloses that the optical system includes a diffractive structure (Col. 3, lines 15-26).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama in view of Ueyanagi et al (hereafter Ueyanagi) (US 6,154,326).

Maruyama discloses the optical head as claimed in claim 1. Maruyama further discloses that the optical system comprises an objective lens that imparts defocus as the first wavefront aberration to the radiation beam (Col. 5, lines 57-64). The examiner notes that the focus adjusting mechanism (Col. 5, lines 63-64) is interpreted as part of compensator. Maruyama does not disclose a collimator lens, arranged closer to the radiation source than the objective lens, as part of the optical system.

Ueyanagi discloses reducing defocus deviation due to temperature change by arranging a collimator lens closer to the radiation source than the objective lens (Col. 11, lines 44-48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the optical system of Maruyama, a collimator lens arranged closer to the radiation source than the objective lens as suggested by Ueyanagi, the motivation being to reduce defocus wavefront aberration caused by temperature change.

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*Citation of Relevant Prior art*

6. Londono et al (US 5,260,828) discloses a compensator that compensates for temperature dependent wavefront deviations caused by an optical system (Figs. 1 and 2). Nakayama et al (US 4,815,059) discloses using a collimator lens to compensate deviations on focal distance due to changes in the wavelength of an emitted laser beam induced by temperature changes (Col. 7, lines 8-21). Leger (US 5,627,847) discloses custom distortion compensating element (Fig. 4A). Takeda (US 6,084,844) and Funato (US 6,072,579) disclose optical path differences that are multiples of the radiation beam.


*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Battaglia whose telephone number is (703) 305-4534. The examiner can normally be reached on 5-4/9 Plan with 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

  
Michael Battaglia

  
BRIAN E. MILLER  
PRIMARY EXAMINER